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ABSTRACT

This annual report presents data on bond elections and bond sales for financing the construction of public elementary and secondary school facilities. Data, summarized by state, are presented in tables and charts containing information on the number and dollar value of bond issues voted on and passed, and the number, dollar value, and net interest cost of bonds sold. In 1975 approval of public school bond issues averaged 46.0 percent of the dollar value and 46.3 percent of the number of issues proposed. Although these rates were down from 1974, the $3.6 billion in reported bond sales represented an increase over fiscal year 1974. The 1975 average net interest cost for all bonds was 6.27 percent. A regression analysis showed that the factors significantly affecting net interest cost were the length of term, timing, bond rating, and type of issuer. (Author/IRT)

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Bond Sales for Public School Purposes 1974-75

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HIGHLIGHTS

In fiscal year 1975, only 929 public school bond elections were held to obtain voter approval for selling bonds to finance construction of public elementary and secondary school facilities. Approval was received for 430 (46.3 percent of those proposed).

Both the number of issues approved and the proportion approved of those proposed decreased from fiscal year 1974, when 779 issues (56.2 percent of those proposed) were approved.

The dollar value of approvals was $1.2 billion, a decrease of 45.4 percent from the $2.2 billion approved in fiscal year 1974.

Bond sales in 1975 numbered 1,060, with a total dollar value of $2.6 billion, representing an increase of 20.9 percent from the almost $3.0 billion sold in fiscal year 1974.

The average net interest cost for school bond issues sold in fiscal year 1975 increased to 6.27 percent from the 5.35 percent recorded for the preceding year.

NCES 76-148

Bond Sales for Public School Purposes 1974-75

By
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Elementary and Secondary
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FOREWORD

This annual report presents data on bond elections and bond sales for financing the construction of public elementary and secondary school facilities. Data, summarized by State, are presented in tables and charts containing information on the number and dollar value of bond issues voted on and passed, and the number, dollar value, and net interest cost of bonds sold.

It is hoped that the data will prove useful to educators, school boards, legislators, educational researchers, and others in planning and financing school construction.

Theodore H. Drews, *Acting Director*
Division of Survey Planning
and Analysis

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INTRODUCTION

Purpose

This report provides data about the sale of bonds for financing the acquisition of public elementary and secondary school facilities (land, construction, buildings, equipment). The National Center for Education Statistics (NCES) issues this report annually for the benefit of school administrators, school board members, and others who require up-to-date knowledge of school bond sales for planning future school bond programs.

Total capital outlay for school facilities has ranged around $5 billion annually in recent years, amounting to approximately 8 percent of the estimated $67.7 billion[1] currently expended on public elementary and secondary education. NCES projections indicate that capital outlay will reach approximately $5.5 billion in fiscal year 1976.[2]

Sources of Information

Information for this report was compiled by the Securities Industry Association (formerly the Investment Bankers' Association) for NCES under a contract with the Office of Education. The data were taken from reports of sales and elections published in *The Daily Bond Buyer* (New York), generally considered the prime source for information on the municipal securities market. Daily reports of transactions were totaled for each month and summarized by issuing agency and by State for the fiscal year. Experience demonstrates this technique to be satisfactory for gathering information, although the coverage remains incomplete for transactions not reported to *The Daily Bond Buyer*. Information on the rating of bond issues was obtained from Moody's Investors Service.[3]

Coverage

This report contains data for fiscal year 1975 (July 1, 1974 to June 30, 1975). Data were compiled on number of bond sales, average net interest cost, issuing agency, and term of maturity. The report also provides summary information regarding bond elections held, number approved or defeated, and par value of the issues voted upon.

[1]U.S. Department of Health, Education, and Welfare, National Center for Education Statistics, *Projections of Education Statistics to 1984-85*. Washington, D.C.: U.S. Government Printing Office, 1976, tables 36 and 39.
[2]*Ibid.*

[3]Source: Moody's Investors Service, New York, N.Y.

BOND ELECTIONS FOR PUBLIC SCHOOL PURPOSES

In fiscal year 1975, 929 school bond elections were reported, proposing public school bond issues totaling $2.6 billion (tables 1, 2, and A). Bond issues for a total of $1.2 billion were approved in 430 of these elections (a 46.3 percent approval rate and a decrease of 44.8 percent from the 779 approvals reported in fiscal year 1974).

Election Results

The 46.3 percent of elections approved in fiscal year 1975 marked the lowest reported for any year since this study was begun. Since fiscal year 1965, when 74.7 percent of bond issues were approved, the percent of issues approved declined, reaching low levels in fiscal years 1971 and 1972 (46.7 and 47.0 percent respectively), then increased to over 56 percent in fiscal years 1973 and 1974, and then dropped to the present low of 46.3 percent (chart 1).

Table 1.—Number of public elementary and secondary school bond elections held and number and percent approved: United States, fiscal years 1964-75

Fiscal year ending June 30	Number of elections—		Approved (in percent)
	Held	Approved	
1964	2,071	1,501	72.5
1965	2,041	1,525	74.7
1966	1,745	1,265	72.5
1967	1,625	1,082	66.6
1968	1,750	1,183	67.6
1969	1,341	762	56.8
1970	1,216	647	53.2
1971	1,086	507	46.7
1972	1,153	542	47.0
1973	1,273	719	56.5
1974	1,386	779	56.2
1975	929	430	46.3

Table 2.—Par value of public elementary and secondary school bond issues proposed in elections, par value of those approved, and those approved as percent of those proposed: United States, fiscal years 1965-75

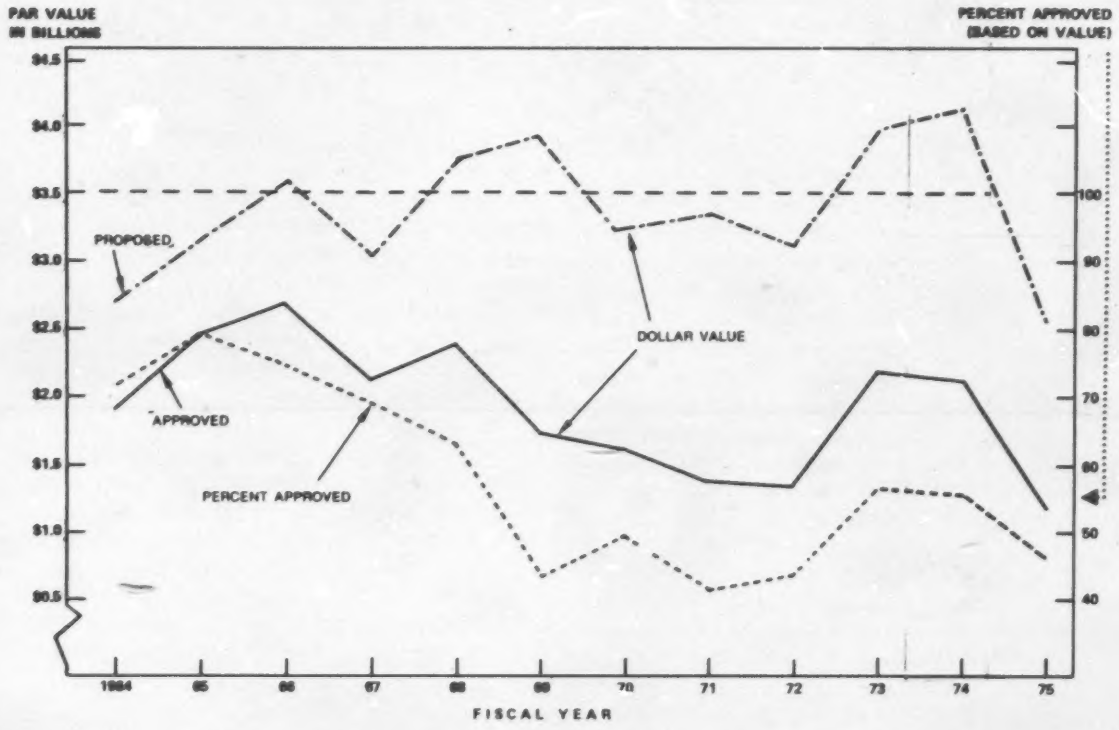
Fiscal year ending June 30	Par value of bond issues (in millions of dollars)		Approved (in percent)
	Proposed	Approved	
1964	$2,672	$1,900	71.1
1965	3,129	2,485	79.4
1966	3,560	2,652	74.5
1967	3,063	2,118	69.2
1968	3,740	2,338	62.5
1969	3,913	1,707	43.6
1970	3,285	1,627	49.5
1971	3,337	1,381	41.4
1972	3,102	1,365	44.0
1973	3,988	2,256	56.6
1974	4,137	2,193	53.0
1975	2,552	1,174	46.0

The $1.2 billion par value of school bonds approved for fiscal year 1975 is the lowest dollar amount recorded since the $1.1 billion reported for 1958. Of the total $1.2 billion approved, three States—California, Illinois, and Texas—accounted for approximately $444 million (37.8 percent) of elections approved and 30.1 percent of the total dollar value of sales. (See tables A and B for data for individual States.) These three States had a 59.7 percent approval rate (compared with a 40.0 percent approval rate for the remainder of the States) and accounted for only 21.8 percent of the dollar value of issues failing to win approval.

State Voting Requirements

State requirements differ concerning voter approval of school bond issues. In 32 States, voter approval is required before any general obliga-

Chart 1.--Par value of public elementary and secondary school bond issues proposed in elections, those approved, and those approved as a percent of proposed: United States, fiscal years 1964-75



SOURCE: TABLE 2

tion bonds can be issued for public school purposes. Fourteen of these States (California, Idaho, Iowa, Kentucky, Massachusetts, Mississippi, Missouri, Nebraska, New Hampshire, New York, Oklahoma, South Dakota, Washington, and West Virginia) require specified percentages in excess of a bare majority for approval (e.g., for passage, Mississippi requires that 54 percent of those voting approve the issue). In 15 States (noted in table A), voter approval is required by some but not all school systems, depending on the classification or charter of the system. Three States—Alabama, Hawaii, and Indiana—do not require voter approval.

NEW BOND SALES FOR PUBLIC SCHOOL PURPOSES

The $3.6 billion in sales during 1975 (tables 3, 4, and B) reflect the continuing need for school facilities. The 1975 sales were up 20.9 percent ($620 million) from sales in 1974—a much larger increase than the 6 percent rise in the cost of construction index for the same period.[4]

The number of sales decreased during the last decade, from 2,050 sales reported in fiscal year 1965 to 1,060 in fiscal year 1975 (table 3), a decrease of 48.5 percent. During the same period the average amount per sale increased from $1.4 million in 1965 to $3.4 million in 1975.

[4]American Appraisal Company Construction Cost Index, published in *Construction Review* by the U.S. Department of Commerce.

Monthly Averages

The average monthly amount of bond sales in fiscal year 1975—$298 million—was 20.9 percent above the 1974 average of $247 million (table 5). Bond sales for the month of January 1975 amounted to $657 million, the highest monthly amount of bond sales ever reported. February was the only other month during which sales exceeded $500 million.

The 12-month moving average of bond sales is an average (arithmetic mean) of monthly sales for the 12-month period ending with each month (chart 2). It is posted and plotted at the seventh month of each 12-month period. For fiscal year 1975 (July 1974-June 1975), the 12-month moving average declined from $241 million at the beginning of the year (plotted in

Table 3.—Summary of primary market, public elementary and secondary school bond sales, and average net interest cost, by type of bond and Moody rating: United States, fiscal years 1964-75

Fiscal year ending June 30	Bond sales		Average net interest cost (in percent)								
				General obligation bonds							
				By Moody rating*							
	Number of sales	Dollar amount (in thousands)	All bonds	All rated	Aaa	Aa	A	Baa	Ba	Non-rated	Revenue bonds
1964	2,096	$2,568,886	3.25	3.21	2.88	3.07	3.17	3.43	3.80	3.40	3.40
1965	2,050	2,822,978	3.25	3.21	2.93	3.11	3.16	3.44	3.76	3.40	3.40
1966	1,941	2,883,089	3.67	3.21	3.26	3.48	3.56	3.86	4.01	3.83	3.83
1967	1,958	3,253,848	4.01	3.94	3.56	3.79	3.86	4.17	4.68	4.23	4.24
1968	1,722	2,917,489	4.57	4.47	3.96	4.23	4.40	4.74	5.05	4.53	4.74
1969	1,529	2,504,206	4.88	4.79	5.05	4.41	4.73	5.07	5.53	4.91	5.26
1970	1,309	2,812,699	6.39	6.32	6.04	5.90	6.28	6.71	7.09	6.44	6.58
1971	1,687	3,908,007	5.48	5.39	5.10	5.02	5.14	5.93	6.80	5.42	5.96
1972	1,547	3,368,017	5.01	4.96	4.54	4.60	4.82	5.48	5.84	4.85	5.49
1973	1,336	2,904,945	4.91	4.84	4.53	4.77	4.79	5.18	5.17	4.97	5.15
1974	1,234	2,959,401	5.35	5.34	4.97	5.04	5.48	5.59	—	5.27	5.67
1975	1,060	3,579,243	6.27	6.26	5.54	6.13	6.57	7.00	—	6.67	7.02

*Moody's Investors Service, Inc., New York, N.Y.

Table 4.—National summary of new bond sales for public school purposes: United States, fiscal year 1975

All bond sales, by issuing agency				
Issuing agency	Number of sales reported	Dollar amount sold (in thousands)	Percent of amount sold	Average net interest cost (in percent)
All agencies	1,060	$3,579,243	100.0	6.27
State	10	714,900	20.0	5.59
County	53	208,985	5.8	6.00
City, town, township	70	361,486	10.1	6.43
School district	879	2,052,347	57.3	6.54
Schoolhousing or other revenue authority	48	241,545	6.7	7.02

Moody-rated* general obligation bond sales, by rating				
Moody rating	Number of sales reported	Dollar amount sold (in thousands)	Percent of amount sold	Average net interest cost (in percent)
All ratings	835	$3,172,928	100.0	6.26
Aaa	21	721,946	22.8	5.54
Aa	114	603,830	19.0	6.13
A	538	1,574,061	49.6	6.57
Baa	162	273,901	8.6	7.00
Ba	—	—	—	—

Average net interest cost of Moody-rated* general obligation bonds, by rating and by quarter (in percent)						
Quarter	All rated bonds	Aaa	Aa	A	Baa	Ba
All quarters	6.26	5.54	6.13	6.57	7.00	—
July-September	6.87	—	6.75	6.90	6.96	—
October-December	6.26	5.55	6.40	6.57	7.38	—
January-March	5.97	5.47	5.79	6.33	6.71	—
April-June	6.49	5.72	6.07	6.78	7.06	—

Average net interest cost of general obligation bonds, by average life and by quarter (in percent)						
Quarter	All terms	0-5 years	6-10 years	11-15 years	16-19 years	20 years and over
All quarters	6.27	5.51	6.11	6.08	7.05	7.03
July-September	6.87	6.24	6.61	6.77	7.15	7.11
October-December	6.26	5.37	5.98	6.54	7.09	6.89
January-March	5.97	5.23	6.06	5.78	6.85	7.10
April-June	6.49	5.68	6.11	6.37	7.13	7.02

NOTE.—National data are for the 50 States.
*Moody's Investors Service, Inc., New York, N.Y.

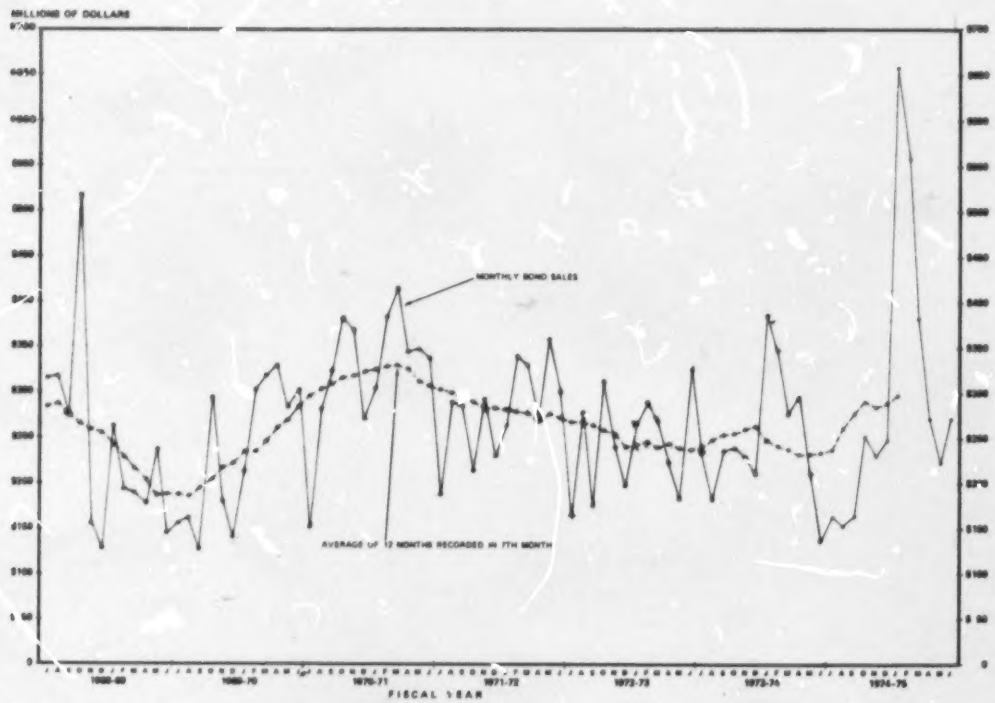
Table 5.—Amount and 12-month moving average of public elementary and secondary school bond sales, by month: United States, July 1968 to June 1975

(In millions)

Month	Amount of sales							12-month moving average amount of sales (recorded in the 7th month)						
	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
July	$314.1	$156.7	$152.4	$187.9	$162.6	$230.9	$163.9	$282.9	$188.6	$294.3	$302.5	$268.5	$238.9	$238.0
August	316.1	162.1	283.1	289.9	275.2	179.5	154.3	286.2	184.4	302.0	299.0	268.0	248.9	260.8
September	275.3	127.0	323.9	285.2	173.4	233.1	164.2	273.3	193.6	308.6	295.4	264.1	253.9	278.3
October	516.4	292.7	382.5	213.0	310.3	236.6	251.7	264.5	204.4	316.4	288.5	258.8	254.4	287.6
November	150.6	180.5	367.5	293.4	238.4	227.0	234.1	270.8	217.1	317.7	292.4	254.8	260.4	285.7
December	128.6	140.8	270.0	231.1	194.8	208.8	248.2	255.1	221.2	322.9	283.5	240.1	262.6	286.9
January	263.0	213.4	305.7	264.0	263.8	385.5	657.5	242.0	234.4	325.7	280.7	243.1	246.6	298.3
February	193.6	303.5	382.9	339.9	287.0	341.8	557.9	228.9	234.0	328.6	278.6	247.8	241.0	
March	189.7	319.8	413.2	330.3	267.3	273.4	384.7	216.0	244.1	329.2	277.3	239.8	238.9	
April	177.5	329.5	344.3	271.6	223.3	294.9	272.4	203.7	260.5	326.0	268.0	244.8	233.2	
May	234.7	294.8	347.2	359.4	182.7	269.3	223.7	185.0	268.0	311.8	276.1	238.7	234.5	
June*	144.3	302.9	336.6	302.2	326.6	134.7	271.1	187.5	283.6	305.7	271.5	237.7	234.7	
Fiscal year monthly avg.	242.0	234.0	325.7	280.7	243.1	246.6	298.3							

*End of fiscal year.

Chart 2.--Amount and 12-month moving average of public elementary and secondary school bond sales, by month: United States, July 1968 to June 1975



SOURCE: TABLE 5

February 1974) to $233 million (plotted in April 1974) and rose to $298 million for the year (plotted in January 1975) (table 5).

Type of Issuing Agency

Of the 1,060 separate bond sales (totaling $3.6 billion) reported for various issuing agencies in fiscal year 1975, school districts completed 879 sales totaling $2.1 billion (tables 4 and B). These sales represented 82.9 percent of the total number of sales and 57.3 percent of the total dollar value of bonds sold.

School bonds issued by public schoolhousing and other revenue authorities accounted for 48 sales totaling $241.5 million in 1974-75. This was 4.5 percent of the number of sales and 6.7 percent of the dollar value of all new issues sold during the fiscal year. Except for the schoolhousing authority bonds, these sales consisted of issues pledging special revenues such as the proceeds of the motor vehicle tax and racetrack receipts which were adopted in Florida as a way of meeting local needs and shifting part of the burden of school construction from the normal local property tax base. The average sale for the schoolhousing authority and other revenue bonds was $5.0 million, compared to an overall average sale of $3.4 million for all issuing agencies and an average school district sale of $2.3 million.

Public schoolhousing authorities were developed as a means of offsetting strict debt limitations in some States. Although the mechanism may vary from State to State, each of the authorities serves to finance the construction, supervise the erection, and lease the finished school building to the local education agency. The debt is repaid from the rents collected by the authority. When the bonds have been re-

tired and other obligations met, the ownership of the building usually passes to the school district.

Governmental agencies other than school districts (i.e., State, county, city, town, or township civil governments) also sell general obligation bonds to finance construction of public school buildings. In 1974-75, these agencies made 133 bond sales totaling $1,285 million (12.5 percent of the number of sales and 35.9 percent of the dollar value (tables 4 and B)); the average sale was $9.7 million. The number of sales these governmental agencies made in fiscal year 1975 decreased 18.4 percent from fiscal year 1974; the total dollar value of sales increased 97.2 percent, and the average sale increased 141.7 percent.

NET INTEREST COST

The net interest cost, measured at the close of the year, which had risen from 5.10 percent for June 1973 to 6.49 percent for June 1974, fell to 6.16 percent for June 1975. The highest net interest cost during fiscal year 1975 occurred in August 1974 when the cost of 6.94 percent matched the previous high reported for December 1969 (table 6 and chart 3). The average net interest cost for all bonds in 1975 was 6.27 percent, an increase of 92 basis points (one basis point equals 0.01 percent) over the 1974 fiscal year average of 5.35 percent (table 3).

Net interest cost partly reflects general market conditions, and no issuing agency or group of issuing agencies can prevent fluctuation in these conditions. However, local factors such as the "faith and credit" of the issuing agency, type of community (residential, business, or industrial), outstanding debt of the agency, tax base available for repayment levy, and terms of repayment also affect cost. Two of the key factors influencing interest cost are a bond issue's rating and its life (period until repayment).

Rating as a Factor in Interest Cost

Moody's Investors Service, Inc., rates bond issues on their general desirability as investments. This service, for a fee, rates issues of governmental agencies, including school districts, that have bonds outstanding or proposed in the amount of $600,000 or more.

The more financially sound the issue is judged, the higher its rating and the lower its interest cost. General obligation bonds receiving Moody ratings (table C) totaled 835 issues and involved $3.2 billion. The average net interest cost for

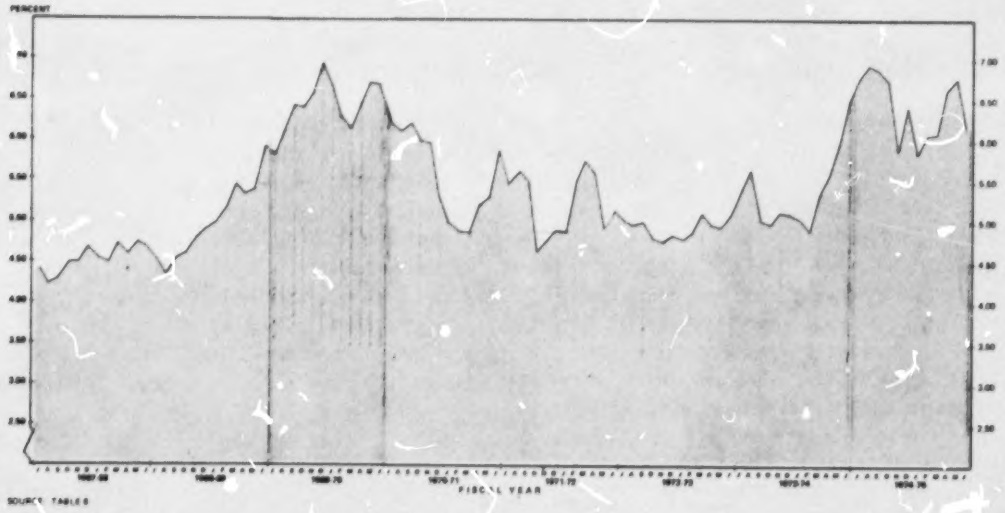
Table 6.—Monthly average net interest cost of public elementary and secondary school bond sales: United States, July 1967 to June 19, 1975

(In percent)

Month	1967-68	1968-69	1969-70	1970-71	1971-1972	1972-73	1973-74	1974-75
July	4.40	4.53	5.81	6.19	5.47	5.0[illegible]	5.41	6.78
August	4.21	4.34	6.09	6.10	5.60	4.97	5.63	6.94
September	4.27	4.54	6.42	6.19	5.01	5.00	5.03	6.89
October	4.49	4.59	6.39	5.98	4.63	4.80	4.98	6.75
November	4.49	4.80	6.58	5.95	4.77	4.75	5.13	5.88
December	4.67	4.90	6.94	5.32	4.91	4.84	5.11	6.42
January	4.54	4.97	6.66	5.00	4.88	4.79	5.05	5.85
February	4.49	5.16	6.29	4.88	4.99	4.88	4.90	6.03
March	4.72	5.45	6.13	4.87	5.25	5.12	5.35	6.04
April	4.58	5.34	6.45	5.20	5.11	4.97	5.57	6.63
May	4.74	5.38	6.70	5.31	4.93	4.94	5.97	6.77
June*	4.68	5.91	6.78	5.88	5.14	5.10	6.49	6.16

*End of fiscal year.

Chart 3.--Monthly average net interest cost of public elementary and secondary school bond sales: United States, July 1967 to June 1975



these rated bonds was 6.26 percent, only 1 basis point less than the 6.27 percent average of all bond issues sold for public school purposes but 41 basis points less than the 6.67 percent average for nonrated bonds.

The average net interest cost of the "Baa" rated bond issues (the lowest rating sold), was 7.00 percent, 146 basis points above the 5.54 percent net interest cost for the highest rated ("Aaa") bond issues. The low rated issues represented 19.4 percent of the number and 8.6 percent of the dollar value of rated issues.

The 21 "Aaa" issues amounted to 2.5 percent of the number and 22.8 percent of the dollar value of all rated bonds sold for public school purposes. The "Aaa", "Aa" and "A" groups accounted for 91.4 percent ($2.9 billion) of the total dollar value and 80.6 percent (673 issues) of the total number of issues for all rated bonds sold.

Since the rating given reflects the general credit rating of the issuing agency, other conditions being equal, the better rating naturally commands a lower interest rate.

Life of Issue as a Factor in Interest Cost

The life of an issue substantially influences the net interest cost. Table 7 (a summary of table D) illustrates the relationship between the life of an issue and net interest cost. Generally, the longer the term of an issue the higher will be the net interest cost. The lowest interest cost (5.51 percent) was for those issues with an average life of 0 to 5 years.

Table 7.—Summary of dollar amount and average net interest cost of general obligation bonds, by average life of issue: United States, fiscal year 1975

Average life of issue (years)	Dollar amount (millions)	Average net interest cost (percent)
0 - 5	$ 77	5.51
6 - 10	843	6.11
11 - 15	1,312	6.08
16 - 19	236	7.05
20 and over	69	7.03

Regression Analyses of Factors Affecting Interest Cost

Regression analyses were conducted to determine if factors (e.g., Moody rating, term of issue, month of issue, issuing agency) currently considered to affect net interest cost were the most significant cost factors, or if there were other more influential factors. The methodology for the analyses and the resulting statistical tables appear in appendix II.

Regression analysis is a statistical technique used to measure relationships between variables. Through regression analysis the researcher can relate the level of net interest cost to other variables such as the average maturity of the issue, the type of underwriter agreement (negotiated or competitive), the type of issuer (State, county, etc.), or other identifiable variables.

In this study, the level of net interest cost was related to 17 other variables. The results showed that of the 17 variables only the following were related to the level of net interest cost: Average maturity of issue (the longer the maturity, the higher the net interest cost), Bond Buyer 20-Bond Index (the higher the municipal interest rates, the higher the net interest cost for each issue), the number of bids received (the more bids, the lower the net interest cost), all bond ratings except for Baa-1 (the better the bond rating, the lower the net interest cost), and the type of issuer (counties had lower net interest costs). The other variables had little relation to net interest cost. All of the variables together were able to explain only 43 percent of the variance in net interest cost, a relatively small amount.

Using the regression technique, gross underwriter spreads (defined as compensation to underwriters for origination and distribution services and for risk bearing) were related to the same variables as those used in the net interest cost analysis. A significant relationship between gross underwriter spread and the following variables was established: Average maturity (the longer the maturity, the higher the spread), Bond Buyer 20-Bond Index (higher interest rates bring higher risk and consequently higher spreads), number of bids (the more bids, the lower the spread), all ratings except for Baa-1 (better ratings reduce risk and spread), type of issuer (county issuers had lower spread), and type of agreement (competitive or negotiated). Type of agreement and number of bids are interrelated (only competitive agreements have bids). The results showed that competitive agreements which have less than five bids have higher spreads than negotiated agreements (see appendix II).

The amount of variance explained by the variables was very low (26 percent), showing that a large component of the variance in underwriter spreads is unexplained.

SUMMARY

In 1975, approval of public school bond issues, averaging 46.0 percent of the dollar value and 46.3 percent of the number of issues proposed, reflected a decrease of 15.4 percent in dollar value and 44.8 percent in the number of issues over the year before. These decreases are the more significant in light of an upward swing during the preceding 2 years.

Although approvals were down, both in number and dollar value, the $3.6 billion in reported bond sales represented an increase of $600 million over fiscal year 1974. The 1975 average net interest cost for all bonds of 6.27 percent was up 92 basis points from the 1974 average of 5.35 percent, indicating an increase in public school borrowing costs. The 6.94 percent monthly average net interest cost recorded for August 1974 equaled the previous high reported for December 1969.

The number of bond sales has decreased over the past decade. Reported sales fell from 2,096 in fiscal year 1964 to 1,060 in fiscal year 1975—a 49.4 percent decrease. However, the average amount per sale increased from $1.2 million in 1964 to over $3.4 million in fiscal year 1975.

A regression analysis showed that the factors significantly affecting net interest cost were the length of term (average maturity), timing (market conditions, Bond Buyer 20-Bond Index, and number of bidders), bond rating (desirability of the bond as an investment), and type of issuer (State, county, city, town, township, school district, or other authority).

REFERENCE TABLES

Table A.—Results of bond elections for public school purposes, by State: United States, fiscal year 1975

State	Number of elections			Elections approved (in percent)	Par value of bond issues (in thousands of dollars)			Value of issues approved (in percent)
	Held	Approved	Defeated		Proposed	Approved	Defeated	
1	2	3	4	5	6	7	8	9
50 States	929	430	499	46.3	$2,551,844	$1,174,283	$1,377,561	46.0
Alabama*	1		1		5,400		5,400	
Alaska	3	3		100.0	52,711	52,711		100.0
Arizona	18	12	6	66.6	61,070	47,290	13,780	77.4
Arkansas	36	26	10	72.2	24,201	15,452	8,749	63.8
California	38	11	27	28.9	333,151	196,465	136,686	58.9
Colorado	20	13	7	65.0	72,800	61,700	11,100	84.7
Connecticut**	5	3	2	60.0	8,516	2,116	6,400	24.8
Delaware**	1	1		100.0	1,142	1,142		100.0
Florida	1	1		100.0	2,900	2,900		100.0
Georgia	11	6	5	54.5	32,475	13,505	18,970	41.5
Hawaii*								
Idaho	5	1	4	20.0	7,345	1,430	5,915	19.4
Illinois**	93	51	42	54.8	222,656	100,226	122,430	45.0
Indiana*								
Iowa	61	21	40	34.4	94,939	18,002	76,937	18.9
Kansas	19	11	8	57.8	74,787	54,648	20,139	73.0
Kentucky								
Louisiana	2	2		100.0	14,719	14,719		100.0
Maine**	12	10	2	83.3	47,752	45,582	2,170	95.4
Maryland**								
Massachusetts*	3	1	2	33.3	5,878	2,945	2,933	50.1
Michigan	68	15	53	22.0	256,015	40,855	215,160	15.9
Minnesota**	56	15	41	26.7	102,600	22,807	79,793	22.2
Mississippi	2		2		5,565		5,565	
Missouri	18	10	8	55.5	36,515	[illegible]	13,370	63.3
Montana	1		1		1,613		1,613	
Nebraska	16	7	9	43.7	37,277	18,838	18,439	50.5
Nevada								
New Hampshire**	13	5	8	38.4	15,361	5,379	9,982	35.0
New Jersey**	33	8	25	24.2	141,364	20,582	120,782	14.5
New Mexico	17	15	2	88.2	51,815	49,847	1,968	96.2
New York**	7	3	4	42.8	15,622	7,876	7,746	50.4
North Carolina	7	3	4	42.8	30,800	5,750	25,050	18.6
North Dakota	5	4	1	80.0	2,309	409	1,900	17.7
Ohio	84	15	69	17.8	176,791	18,888	157,903	10.6
Oklahoma	66	40	26	60.6	37,742	22,935	14,807	60.7
Oregon	15	7	8	46.6	42,998	26,367	16,631	61.3
Pennsylvania**								
Rhode Island	10	6	4	60.0	28,950	18,300	10,650	63.2
South Carolina								
South Dakota	12	3	9	25.0	9,157	2,545	6,612	27.7
Tennessee**	1		1		3,078		3,078	
Texas	96	69	27	71.8	188,047	147,086	40,961	78.2
Utah	7	7		100.0	53,660	53,660		100.0
Vermont	6	3	3	50.0	5,043	2,122	2,921	42.0
Virginia**	3	2	1	66.6	66,200	6,200	60,000	9.3
Washington	30	11	19	36.6	118,629	22,005	96,624	18.5
West Virginia	3	1	2	33.3	10,500	4,000	6,500	38.0
Wisconsin**	14	3	11	21.4	24,614	5,569	19,045	22.6
Wyoming	10	5	5	50.0	27,137	18,285	8,852	67.3

*Voter approval not required of any school system.
**Voter approval not required of some school systems.

Table B.—Summary of number, dollar amount, and average net interest cost of new bond

State	All agencies			State			County		
	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)
1	2	3	4	5	6	7	8	9	10
50 States	1,060	$3,579,243	6.27	10	$714,900	5.59	53	$208,965	6.00
Alabama									
Alaska	8	61,200	6.09	1	40,300	5.98			
Arizona	39	57,265	6.17						
Arkansas	9	10,785	5.89						
California	78	257,344	5.95	1	90,000	5.41			
Colorado	23	110,732	6.65						
Connecticut	12	231,000	5.73	2	200,000	5.68			
Delaware									
Florida									
Georgia	4	46,300	5.95	1	38,400	5.91			
Hawaii									
Idaho	12	21,280	6.89						
Illinois	134	645,799	5.79	1	150,000	5.19			
Indiana	30	117,333	7.06						
Iowa	28	19,092	5.97						
Kansas	16	43,526	5.85						
Kentucky	23	34,090	6.28				17	22,885	6.24
Louisiana	17	39,975	6.62						
Maine	1	1,115	6.26						
Maryland									
Massachusetts	27	121,365	6.36						
Michigan	61	174,600	6.94						
Minnesota	39	68,061	6.36						
Mississippi	4	12,650	6.18	1	6,000	6.00			
Missouri	29	39,015	6.29						
Montana									
Nebraska	2	6,500	6.34						
Nevada	3	18,000	7.07						
New Hampshire	11	20,370	6.74						
New Jersey	33	88,229	6.55						
New Mexico	22	35,138	5.98						
New York	28	165,772	6.87						
North Carolina	12	121,880	5.56	1	76,000	5.43	9	44,730	5.81
North Dakota	6	3,301	6.26						
Ohio	22	64,981	7.36						
Oklahoma	27	20,364	5.08						
Oregon	16	50,865	6.84						
Pennsylvania	48	199,420	6.84						
Rhode Island									
South Carolina	13	83,505	5.97	1	64,200	5.78	1	1,500	6.26
South Dakota	6	10,850	6.60						
Tennessee	24	124,680	6.08				20	117,900	6.04
Texas	124	208,836	6.21						
Utah	13	38,455	5.82						
Vermont	1	1,098	6.39						
Virginia									
Washington	6	11,639	6.68						
West Virginia	4	63,306	6.01	1	50,000	5.96			
Wisconsin	25	66,604	5.88						
Wyoming	13	27,150	6.24						

sales for public school purposes, by issuing agency and State: United States, fiscal year 1975

City, town or township			School district			Schoolhousing authority and other revenue authorities			State
Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	
11	12	13	14	15	16	17	18	19	20
70	$361,486	6.43	879	$2,052,347	6.54	48	$241,545	7.02	50 States
									Alabama
7	20,900	7.23							Alaska
			39	57,265	6.17				Arizona
			8	9,255	5.89				Arkansas
1	20,826	5.98	74	141,753	6.38	2	4,765	7.30	California
			23	110,732	6.65				Colorado
7	27,560	6.14	3	3,440	6.61				Connecticut
									Delaware
									Florida
			3	7,900	6.57				Georgia
									Hawaii
			12	21,280	6.89				Idaho
			133	495,799	6.27				Illinois
			9	13,233	5.41	21	104,100	7.08	Indiana
			28	19,092	5.97				Iowa
			16	43,526	5.85				Kansas
5	7,295	6.32							Kentucky
			15	39,165	6.62				Louisiana
1	1,115	6.26							Maine
									Maryland
23	97,280	6.09	4	24,085	7.01				Massachusetts
			61	174,600	6.94				Michigan
			39	68,061	6.36				Minnesota
			3	6,650	6.32				Mississippi
1	600	6.12	28	38,415	6.29				Missouri
									Montana
			2	6,500	6.34				Nebraska
			3	18,000	7.07				Nevada
4	15,010	6.82	7	5,360	6.27				New Hampshire
3	11,703	5.85	30	76,526	6.70				New Jersey
			22	35,128	5.98				New Mexico
3	102,800	7.06	25	62,972	6.56				New York
									North Carolina
			6	3,301	6.26				North Dakota
			22	64,981	7.36				Ohio
			27	20,364	5.08				Oklahoma
			16	50,865	6.84				Oregon
			24	88,730	6.84	22	110,690	6.83	Pennsylvania
									Rhode Island
			11	17,805	6.69				South Carolina
			6	10,850	6.60				South Dakota
4	6,780	6.69							Tennessee
1	2,500	6.44	122	201,336	6.21				Texas
			13	38,455	5.82				Utah
1	1,098	6.39							Vermont
									Virginia
			6	11,639	6.68				Washington
			3	13,305	6.53				West Virginia
8	42,694	5.61	17	22,710	6.53				Wisconsin
			12	25,010	6.24				Wyoming

Table C.—Summary of number, dollar amount, and average net interest cost of Moody-rated* general

State	All rated bonds			Aaa			Aa		
	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands	Average net in terest cost (in percent)
1	2	3	4	5	6	7	8	9	10
50 States	835	$3,172,928	6.26	21	$721,946	5.54	114	$603,830	6.13
Alabama									
Alaska	7	56,600	5.98						
Arizona	28	54,145	6.17						
Arkansas	2	4,400	5.68						
California	67	251,623	5.93	3	114,576	5.52	8	50,741	6.32
Colorado	21	109,232	6.65				6	63,220	6.47
Connecticut	12	231,000	5.73	4	206,545	5.69	5	20,840	6.23
Delaware									
Florida									
Georgia	4	46,300	5.95	1	38,400	5.91			
Hawaii									
Idaho	9	20,360	6.89				1	2,400	6.91
Illinois	114	412,089	5.79	1	150,000	5.19	18	53,997	6.28
Indiana	20	106,285	7.05	2	8,050	4.26	1	14,000	6.74
Iowa	21	17,271	5.79						
Kansas	4	20,050	5.85				2	18,000	5.87
Kentucky	7	20,330	6.22						
Louisiana	14	39,065	6.62						
Maine	1	1,115	6.26						
Maryland									
Massachusetts	26	121,070	6.36				10	48,265	5.72
Michigan	50	170,895	6.94	2	10,000	6.01	10	27,605	6.86
Minnesota	32	60,986	6.36	3	14,775	5.22	1	1,310	5.51
Mississippi	4	12,650	6.18				1	6,000	6.00
Missouri	22	34,265	6.29						
Montana									
Nebraska	1	5,000	6.34						
Nevada	3	18,000	7.07				1	10,500	7.42
New Hampshire	10	20,120	6.74				3	9,895	6.00
New Jersey	30	86,921	6.56				8	30,552	6.31
New Mexico	12	31,663	5.90						
New York	23	162,558	6.87				2	12,872	5.33
North Carolina	11	121,660	5.56	1	76,000	5.43	2	29,200	5.74
North Dakota	5	3,141	6.26						
Ohio	16	61,094	7.38				3	8,370	6.44
Oklahoma									
Oregon	14	49,387	6.84						
Pennsylvania	38	162,200	6.74				4	12,395	4.58
Rhode Island									
South Carolina	13	83,505	5.97	1	64,200	5.78			
South Dakota	5	10,700	6.60						
Tennessee	20	120,830	6.07				3	78,560	5.77
Texas	109	205,131	6.21				10	41,300	6.00
Utah	13	38,455	5.82				5	21,930	5.39
Vermont	1	1,098	6.39				1	1,098	6.39
Virginia									
Washington	5	11,355	6.68						
West Virginia	4	63,305	6.01						
Wisconsin	22	64,944	5.88	1	25,400	5.53	4	12,690	5.65
Wyoming	9	20,575	6.24				1	2,500	5.66

*Moody's Investors Service Inc., 99 Church Street, New York, N.Y. 10007.

obligation bond sales for public school purposes, by rating and State: United States, fiscal year 1975

A			Baa			Ba			State
Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	
11	12	13	14	15	16	17	18	19	20
538	$1,574,061	6.57	162	$273,091	7.00	225	236,315	6.67	50 States
									Alabama
6	54,800	5.98				1	4,600	7.23	Alaska
26	52,525	6.17				11	3,120	6.56	Arizona
2	4,400	5.68				7	6,385	5.97	Arkansas
47	73,536	6.52	9	12,770	7.21	11	5,721	6.83	California
14	42,012	6.80							Colorado
3	4,615	6.09							Connecticut
									Delaware
									Florida
3	7,900	6.57							Georgia
									Hawaii
7	16,460	6.88				3	920	6.88	Idaho
90	199,212	6.24	5	8,860	6.79	20	233,730	6.48	Illinois
10	58,435	7.09	7	25,800	7.16	10	11,048	7.01	Indiana
21	17,271	5.79				7	1,821	6.66	Iowa
2	2,050	5.67				12	23,476	5.84	Kansas
6	19,630	6.22				16	13,760	6.61	Kentucky
			10	17,865	6.62				Louisiana
1	1,115	6.26							Maine
									Maryland
16	72,805	6.86				1	295	6.68	Massachusetts
31	109,810	6.96	7	23,480	7.21	11	3,705	6.94	Michigan
15	24,564	6.27	13	20,337	6.64	7	7,075	6.39	Minnesota
2	4,400	6.52	1	2,250	5.95				Mississippi
21	32,700	6.29				7	4,750	6.30	Missouri
									Montana
1	5,000	6.34							Nebraska
2	7,500	6.07							Nevada
7	10,225	7.34							New Hampshire
11	32,714	6.81	11	23,655	7.34	3	1,308	6.27	New Jersey
12	31,663	5.90				10	3,475	6.99	New Mexico
18	146,452	6.92	3	3,234	7.58	5	3,214	6.11	New York
6	13,660	6.14							North Carolina
5	3,141	6.26							North Dakota
13	52,724	7.47				6	3,887	7.08	Ohio
						25	12,464	5.08	Oklahoma
14	49,387	6.84							Oregon
22	101,690	6.66	12	48,115	7.11	8	37,220	7.34	Pennsylvania
									Rhode Island
9	15,555	6.72	3	3,750	6.41				South Carolina
5	10,700	6.60							South Dakota
7	23,475	6.48	10	18,795	6.65	4	3,850	6.50	Tennessee
37	99,121	6.02	60	49,710	7.01	15	3,705	6.44	Texas
8	16,525	6.30							Utah
									Vermont
									Virginia
			1	400	6.68				Washington
3	58,955	6.01							West Virginia
15	26,204	6.28				3	660	6.36	Wisconsin
8	18,075	6.32				4	6,575	6.10	Wyoming

Table D.—Summary of number, dollar amount, and average net interest cost of general obligation bond

State	All terms			Average life of issue					
				0-5 years			6-10 years		
	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands	Average net interest cost (in percent)
1	2	3	4	5	6	7	8	9	10
50 States	580	$2,537,475	6.27	51	$76,579	5.51	212	$843,394	6.11
Alabama									
Alaska	2	44,900	6.09						
Arizona	22	40,155	6.17	5	2,380	6.00	10	24,245	6.04
Arkansas	3	6,091	5.89						
California	41	196,490	5.95	1	200	4.95	12	10,928	6.51
Colorado	8	36,341	6.65				2	7,526	6.47
Connecticut	7	222,290	5.73				5	120,695	5.81
Delaware									
Florida									
Georgia	3	42,400	5.95						
Hawaii									
Idaho	6	13,435	6.89						
Illinois	74	369,885	5.79	16	16,214	5.88	44	138,223	6.14
Indiana	25	107,920	7.06	3	6,350	5.25	2	845	5.50
Iowa	11	7,486	5.97				4	1,737	5.73
Kansas	12	37,501	5.85	1	100	5.20	6	11,576	5.66
Kentucky	7	18,110	6.28				2	1,550	5.24
Louisiana	9	12,615	6.62						
Maine	1	1,115	6.26				1	1,115	6.26
Maryland									
Massachusetts	18	92,585	6.36	2	3,650	5.33	14	85,440	6.38
Michigan	40	153,615	6.94	4	7,920	4.71	7	16,845	6.40
Minnesota	24	39,785	6.36	2	2,538	5.31	10	16,521	5.61
Mississippi	3	11,650	6.18				2	8,250	5.98
Missouri	21	31,885	6.29	1	1,500	6.22	4	4,200	5.74
Montana									
Nebraska	1	5,000	6.34						
Nevada	2	15,500	7.07				1	5,000	6.07
New Hampshire	6	18,370	6.74				2	5,670	5.77
New Jersey	16	50,258	6.55				7	10,312	6.36
New Mexico	10	22,338	5.98	5	14,038	5.17	3	5,600	6.28
New York	19	153,668	6.87	3	16,500	5.55	10	102,749	7.06
North Carolina	6	111,230	5.56						
North Dakota	2	1,486	6.26				1	871	6.23
Ohio	13	49,533	7.36				2	1,005	6.88
Oklahoma	2	1,920	5.08				2	1,920	5.08
Oregon	10	37,720	6.84	1	2,664	6.38	3	6,899	6.13
Pennsylvania	26	102,315	6.84	1	560	4.58	5	5,940	6.31
Rhode Island									
South Carolina	8	76,640	5.97				3	66,700	5.78
South Dakota	4	3,900	6.60						
Tennessee	20	116,110	6.08	1	250	6.10	5	73,990	5.75
Texas	61	128,231	6.21	2	225	5.53	16	18,300	6.04
Utah	10	27,250	5.82	2	1,140	5.67	6	21,925	5.48
Vermont	1	1,098	6.39				1	1,098	6.39
Virginia									
Washington	1	400	6.68						
West Virginia	3	58,955	6.01				2	8,955	6.53
Wisconsin	15	53,324	5.88				11	43,089	5.86
Wyoming	7	15,975	6.24	1	350	4.70	5	13,025	6.07

sales for public school purposes, by average life of issue and State: United States, fiscal year 1975

Average life of issue									State
11-15 years			16-19 years			20 years and over			
Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	Number of sales	Dollar amount (in thousands)	Average net interest cost (in percent)	
11	12	13	14	15	16	17	18	19	20
240	$1,312,445	6.08	64	$236,057	7.05	13	$89,000	7.03	50 States
									Alabama
									Alaska
2	44,900	6.09							Arizona
7	13,530	6.38							Arkansas
3	6,091	5.80							California
26	180,972	5.87	2	4,390	7.21				Colorado
5	23,815	6.49	1	5,000	7.26				Connecticut
2	101,595	5.65							Delaware
									Florida
									Georgia
3	42,400	5.95							Hawaii
									Idaho
6	13,435	6.89							Illinois
14	215,448	5.61							Indiana
9	39,590	6.82	8	31,160	7.14	3	29,975	7.24	Iowa
7	5,749	6.02							Kansas
5	25,825	5.92							Kentucky
2	8,550	6.14	3	8,010	6.49				Louisiana
7	11,965	6.62							Maine
									Maryland
									Massachusetts
1	3,200	6.29	1	295	6.68				Michigan
2	9,025	6.27	25	110,490	7.03	2	9,335	7.10	Minnesota
11	18,101	6.67	1	2,625	6.91				Mississippi
1	3,400	6.52							Missouri
11	12,936	6.22	5	12,250	6.47				Montana
									Nebraska
1	5,000	6.34							Nevada
1	10,500	7.42							New Hampshire
3	6,635	6.25	1	6,065	7.48				New Jersey
9	39,946	6.59							New Mexico
2	2,700	6.83							New York
5	31,745	6.63	1	2,674	7.63				North Carolina
6	111,230	5.56							North Dakota
1	615	6.29							Ohio
11	48,528	7.37							Oklahoma
									Oregon
4	18,689	6.83	2	9,468	7.15				Pennsylvania
10	47,075	6.46	7	27,660	7.28	3	21,080	6.81	Rhode Island
									South Carolina
5	9,940	6.75							South Dakota
4	3,900	6.60							Tennessee
12	35,070	6.39	1	3,000	7.33	1	3,800	6.54	Texas
33	91,926	6.05	6	12,970	6.78	4	4,810	7.17	Utah
2	4,185	6.88							Vermont
									Virginia
									Washington
1	400	6.88							West Virginia
1	50,000	5.96							Wisconsin
4	10,235	6.51							Wyoming
1	2,600	6.90							

APPENDIXES

I. Definitions

II. Regression Study Results

APPENDIX I

DEFINITIONS

Types of Bonds
A bond is the promise of the issuer to pay the specified amount of money at the specified date and to pay periodically the specified rate of interest. School bonds are part of the group commonly called "municipal bonds" and are generally understood to include bonds issued by a State, county, town, township, school district, or other public authority. They may be "term bonds," with all the bonds in the issue maturing at the same time, or "serial bonds," with the bonds in the issue maturing at intervals over a period of several years. Most school bonds are serial.

Most school bonds are also "general obligation bonds," secured by the issuer's pledge of full faith and credit and taxing power, and are frequently designated more specifically as certificates of indebtedness, building coupon bonds, debentures, unlimited tax schoolhouse bonds, school project acts, or building warrants.

Schoolhousing authority issues usually are rental revenue bonds secured by a mortgage on the building and a pledge of repayment from revenues to be received for use of facilities. "Special revenue bonds" pledge the proceeds of a special revenue or tax, such as a motor vehicle license tax, cigarette tax, or racetrack receipts.

Twelve-Month Moving Average
The 12-month moving average of bond sales is an average (arithmetic mean) of monthly sales for the 12-month period ending with each month. Each average would properly be plotted at the midpoint of the period being averaged; however, for ease in recording and plotting, the 7th month of each 12-month period is used. For example, the average for the period November 1971 through October 1972 was recorded and plotted as of May 1972, and the average for the July 1973 through June 1974 period was recorded in January 1974. The line formed by connecting these points is a trend line of monthly sales with the seasonal fluctuations minimized.

Bond Ratings
Moody's Investors Service, Inc., rates bond issues on their general desirability as investments. This service, for a fee, rates issues of governmental agencies, including school districts, that have bonds outstanding or proposed in the amount of $600,000 or more.

"Aaa" bonds are judged to be the best quality. They carry the smallest degree of investment risk; interest payments are protected by an exceptionally stable margin, and principal is secure.

"Aa" bonds are judged to be of high quality by all standards. They are rated lower than the "Aaa" bonds because margins of protection may be smaller.

"A-1" bonds are "A" bonds which are better than most in the "A" class but do not meet the standards for a "Aa" rating.

"A" bonds are termed higher medium-grade obligations. Factors giving security to principal and interest are considered adequate.

"Baa-1" bonds are "Baa" bonds which are better than most in the "Baa" class but do not meet the standards for an "A" rating.

"Baa" bonds are considered lower medium-grade obligations; i.e., neither highly protected nor poorly secured. Certain protective elements may be lacking or may be characteristically unreliable over a great length of time.

"Ba" bonds are judged to have speculative elements; their future cannot be considered well-assured. Protection of interest and principal payments may be very moderate.

Net Interest Cost

Net interest cost is the average cost of borrowing the money, taking into consideration the varying interest rates and redemptions that apply to the bond issue and any premium paid or discount taken at the time of the sale. For any group of bond issues the average for the group is weighted by the size of the issues and their respective redemption schedules.

APPENDIX II

REGRESSION STUDY RESULTS

I. Net Interest Cost Analysis

The net interest costs on bond issues used to finance education will vary according to issue characteristics (e.g., maturity, revenue versus general obligation, etc.), offering characteristics (e.g., competitive versus negotiated), and issuer characteristics (risk as represented by rating, etc.). In addition, changes in the overall level of market rates are generally the most important factor explaining variance in interest costs for bonds issued in different periods. A linear multiple regression equation was formulated to analyze variations in net interest cost (NIC), the dependent variable.

The regression analysis was based on the 565 issues for which complete data were available.

The following independent variables were included in the regression equation:

Issue characteristics

1. Amount (in millions)
2. Average maturity (years)
3. Revenue bond dummy variable (=1 if the issue is a revenue bond, 0 otherwise). The coefficient of this variable is interpreted as the incremental cost in NIC for a revenue bond relative to a general obligation bond.

Issuer characteristics

1. Type issuer—State (=1 if State, 0 otherwise).
2. Type issuer—county (=1 if county, 0 otherwise).
3. Type issuer—municipality (=1 if municipality, 0 otherwise).
4. Type issuer—special district (=1 if special district, 0 otherwise).
5. Type issuer—statutory authority (=1 if statutory authority, 0 otherwise).

NOTE: Variables 1-5 are examples of dummy variables that are defined (equal to 1) if the issue is of the specified type. The "omitted" class is school district. (There were no issues from townships.) *The coefficients of these variables are interpreted as the incremental costs (in NIC) associated with bonds of these issuers relative to* the bonds of school districts.

6. Aaa/Baa (=1 if issue is rated Aaa, 0 otherwise).
7. Aa/Baa (=1 if issue is rated Aa, 0 otherwise).
8. A-1/Baa (=1 if issue is rated A-1, 0 otherwise).
9. A/Baa (=1 if issue is rated A, 0 otherwise).
10. Baa-1/Baa (=1 if issue is rated Baa-1, 0 otherwise).
11. Unrated/Baa (=1 if issue is unrated (by Moody's), 0 otherwise).

NOTE: These dummy variables are specified to capture the effect of differences in Moody ratings (used as surrogates of credit risk) on NIC. The omitted class is the Baa rating. Thus, the coefficients of each of these variables represents the increment in NIC for bonds of a given rating (e.g., Aaa) *relative to* Baa-rated bonds.

Offering characteristics

1. *Competitive/negotiated* (=1 if issue is sold under competitive bid, 0 otherwise). This variable measures the incremental NIC associated with competitive bids *relative to* negotiated issues.

Other independent variables

1. *BBI-20*—The Bond Buyer 20-Bond Index (a measure of the average 20-year reoffering yield) is specified for the week of each issue. This variable is designed to remove the effects of variations in the overall market from variations in NIC for bonds sold in different periods during 1974-75.
2. *Number of bids*—The number of bids on each bond issue is specified to capture other aspects of the demand for that issue that are not already specified (such as the Moody rating).

The regression results are reported in table II-A. As noted, 43 percent of the variance in borrowing costs is captured by the multiple regression equation. The standard error indicates that two-thirds of the observations fall within 50 basis points (or less than 10 percent of the average NIC) of the predicted NIC. As expected, the longer the average term to maturity, the higher the NIC; the magnitude of this coefficient (6.4 basis points per each additional year in average maturity) reflects the slope of the yield curve over the 1974-75 period.

It is interesting to note that while the mere fact that an issue was sold competitively rather than negotiated was not statistically significant, the number of bids received was significantly related to NIC—for each additional bid received, NIC declined by 5.4 basis points relative to the cost of a negotiated bond issue or a competitive issue receiving only one bid.

The borrowing costs on bond issues were not sensitive, given other factors, to the type of issuer with one exception—counties tended have an NIC 18 basis points lower than school districts.

Aside from variance in market rates, number of bids received and average maturity, the most striking results of this analysis were the rating effects. Reflecting the emergence of the "two-tier" market, high-grade bonds sold at markedly lower rates than Baa-rated bonds. For Aaa-rated bonds, this differential amounted to 106 basis points; the differential for Aa-rated bonds relative to Baa-rated

Table II-A.—Regression results—net interest cost as dependent variable

Sample Size = 566
R^2 = .4297
Standard error of regression = .502
Net interest cost (mean) = 6.339

Independent variable	Coefficient	'T' value
Constant term	2.441	3.585
Average maturity (years)	.064	13.111*
Bond Buyer-20 Bond Index	.548	5.715*
Number of bids	- .054	- 4.617*
State/school district	- .067	- .341
County/school district	- .180	- 1.760**
Municipality/school district	.105	1.368
Special district/ school district	- .263	- .733
Statutory authority/ school district	- .017	- .116
Aaa/Baa	-1.063	- 5.137*
Aa/Baa	- .476	- 3.750*
A-1/Baa	- .333	- 2.746*
A/Baa	- .250	- 2.204*
Baa-1/Baa	- .023	- .182
Unrated/Baa	- .255	- 2.099*
Revenue/general obligation	.127	.887
Competitive/ negotiated	- .120	-1.078
Amount ($ in millions)	.004	1.500

*Indicates significance at the 5 percent level.

bonds was almost 50 basis points, or double the differential between A and Baa credits. Interestingly, unrated bonds appeared to have a significantly lower cost of borrowing (25.5 basis points, or equivalent to A-ratings) than the lowest investment grade bonds. (This may be spurious, since some of these issues may have been rated by Standard & Poor's, which tends to rate bonds higher than Moody's. Standard and Poor's ratings were not available for this study.)

II. Analysis of Underwriting Spreads

The underwriting spread on a bond issue (for this study, defined as the gross spread) represents the compensation to underwriters for origination and distribution services and for risk bearing. There are very few studies available on the determinants of spreads, although the evidence suggests that variance in the quality and maturity of an issue, the level of interest rates generally, and other indications of risk may relate to variance in spreads.

For this study, data were available on 341 of the 1,060 bond issues for elementary and secondary educational purposes; these data were used in a linear multiple regression analysis with gross spreads as the dependent variable. The mean spread for these issues was $16.05 per $1000 par value. The independent variables were identical to the variables used in the NIC regression equation, and the variable definitions are supplied in that discussion.

The results of the multiple regression analysis are presented in table II-B. In analyzing these results, it is noteworthy that the set of independent variables taken together account for only 26 percent of the variance in underwriting spreads; this is in contrast to the R^2 of .429 in the NIC regressions. (The R^2 terms adjusted for degrees of freedom are .223 for the spread regression and .412 for the NIC regression.)

As noted in table II-B, the regression statistics indicate that the underwriting spread varies directly with the level of interest rates (Bond Buyer 20-Bond Index) and the average maturity of an issue.

Ratings, as surrogates for default risk, appear to have a very significant effect on spreads, as the spread on high-grade issues was over $9 less (per $1,000 per value) than the spread on Baa-rated issues. Again, as noted in the NIC regression, unrated bonds

Table II-B.—Regression results—gross underwriting spreads as dependent variable

Sample size = 341
R^2 = .262
Standard error of regression = 6.585
Underwriting spread (mean) = 16.05

Independent variable	coefficient	'T' value
Constant term	-3.124	- .713
Average maturity (years)	.427	4.536*
Bond Buyer-20 Bond Index	3.805	2.4*0*
Number of bids	- .825	-3.836*
State/school district	4.664	1.606
County/school district	- .479	- .290
Municipality/ school district	.097	.078
Special district/ school district	- .979	- .145
Statutory authority/ school district	- .853	- .335
Aaa/Baa	-9.138	-2.774*
Aa/Baa	-9.806	-4.155*
A-1/Baa	-8.445	-3.682*
A/Baa	-7.753	-3.555*
Baa-1/Baa	-4.993	-2.124*
Unrated/Baa	-6.910	-2.768*
Revenue/general obligation	.919	.381
Competitive/ negotiated	3.838	2.351*
Amount ($ in millions)	.033	.874

*Indicates significance at the 5 percent level.

tended to sell at spreads comparable to A-rated bonds.

Perhaps the most surprising results were indicated by the type of offering and number of bids. The coefficient of type of offering (3.8378) and the coefficient of the number of bids (-.8246) imply that a competitive issue receiving one bid sold at a spread of $3.013 higher than a negotiated issue similar in all other respects. In general, these results imply that the spread on competitive issues would be higher than negotiated issues for any competitive issues receiving less than five bids. Since the average number of bids received was only 3.2 for the overall sample, these results suggest that negotiated issues were somewhat less costly methods of distribution during 1974-75.

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